

# *NATIONAL AGROMET BULLETIN*



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**December 2015**



## Highlights for December 2015

- ✚ **Moderate drought conditions reported for some southern stations.**
- ✚ **Below normal to near normal rainfall is forecast for most stations for January through March.**
- ✚ **Above normal temperatures forecast to continue through March 2016.**

### Weather Summary for the month of December 2015

In the early part of the month the weather was dominated by Troughs, however in the latter part of the month High Pressure Ridges were the dominant weather features.

During the month, Sangster Airport in the northwest recorded 93.6 mm of rainfall, while Norman Manley Airport in the southeast recorded 37.0 mm of rainfall. There were five (5) rainfall days reported for both Sangster and Norman Manley stations. Manley received just above its 30-year average monthly rainfall while Sangster received just below its 30-year average monthly rainfall. Sangster recorded well below the average number of rainfall days (13) while, Manley was just above its average number of rainfall days (4).

The highest maximum temperature recorded for Norman Manley Airport was 33.3°C (1st December) meanwhile Sangster Airport reported 34.0°C (2nd December). Based on temperature records for the Sangster Airport station from 1963 to present; December 2015 was the warmest December on record.



### Standardized Precipitation Index (SPI)

The Standardized Precipitation Index (SPI), developed by T.B. McKee, N.J. Doesken, and J. Kleist in 1993, is based only on precipitation. One unique feature is that the SPI can be used to monitor conditions on a variety of time scales namely 1- month, 3-month, 6-month, 9-month and 12-month periods. This temporal flexibility allows the SPI to be useful in both short-term agricultural and long-term hydrological applications.

#### KEY

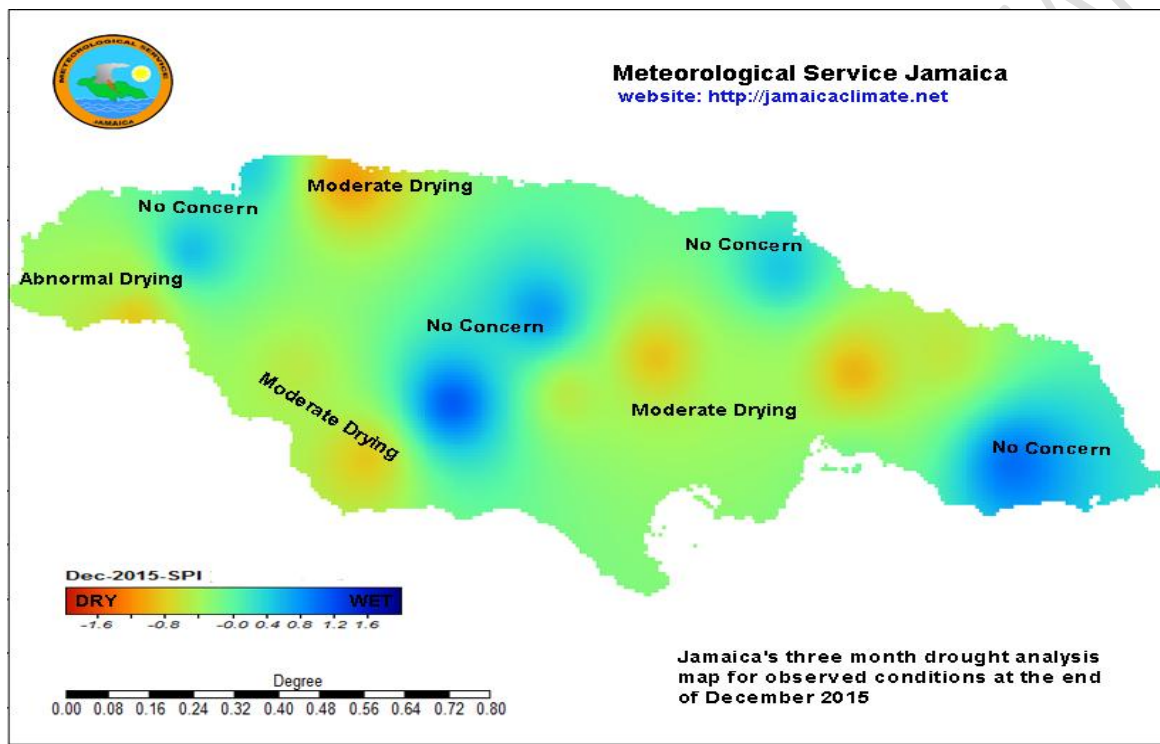
SPI Value	Category	SPI Value	Category
-0.5 to -0.7	Abnormally Dry (30%tile)	0.5 to 0.7	Abnormal Wetness (70%tile)
-0.8 to -1.2	Moderate Drought (20%tile)	0.8 to 1.2	Moderate Wetness (80%tile)
-1.3 to -1.5	Severe Drought (10%tile)	1.3 to 1.5	Severe Wetness (90%tile)
-1.6 to -1.9	Extreme Drought (5%tile)	1.6 to 1.9	Extreme Wetness (95%tile)
-2.0 or less	Exceptional Drought (2%tile)	2.0 or more	Exceptional Wetness (98%tile)

**Table 1. Rainfall and Drought Analyses for Selected Stations**

Parish	Station	December Monthly Total (mm)	Percent of 30 year Mean (%)	SPI for December
Hanover	Mount Peto	119	127	0.51
Westmoreland	Sav-La-Mar	37	47	-0.85
Westmoreland	Frome	51	71	-0.46
Manchester	Sutton	105	185	1.10
St. Elizabeth	Y.S. Estates	51	68	-0.55
St. Elizabeth	Potsdam	21	37	-0.86
Clarendon	Beckford Kraal	53	72	-0.54
St. Catherine	Tulloch	32	36	-0.39
St. Catherine	Worthy Park	6	8	-0.89
Trelawny	Orange Valley	62	55	-1.12
St. James	Sangster	94	98	0.40
St. Ann	Cave Valley	0	0	0.73
St. Mary	Hampstead	193	101	0.46
Portland	Shirley Castle	226	44	-0.59
St. Thomas	Serge Island	207	202	1.00
KSA	Langley	46	28	-0.98
KSA	Manley Airport	37	123	-0.11

### **Standardized Precipitation Index Discussion**

Five of the seventeen stations reported moderate drought at the end of December. Three other stations were showing abnormally dry conditions. In contrast two stations namely, Suttons in Manchester and Serge Island in St. Thomas were showing moderately wet conditions. December represents the start of the dry season however, the island received above normal rainfall activity especially over sections of eastern and some central parishes, as shown in figure 1 (see below).



**Fig.1 Station drought condition for December 2015**

### **Precipitation Outlook – January to March 2016**

The rainfall outlooks for the period January to March 2016, from the Global Dynamic Models as well as the Climate Predictability Tool (CPT) are indicating drier than normal conditions with warmer days. This means that we should expect less rainfall than that which is normal.

Of the seventeen rainfall stations that were examined across the island, eleven are likely to experience below normal to near normal rainfall. The most recent forecast from our computer models indicate sections of eastern, southern and northwestern parishes could receive below normal rainfall, especially drought affected parishes of St. Mary and Clarendon. Rainfall deficits



could continue to affect sections of the parishes of Portland, St Thomas, KSA, St Elizabeth and Trelawny due to below normal rainfall for the greater portion of 2015.

**Table 2. Climate Predictability Tool (CPT) Outlook JFM 2016.**

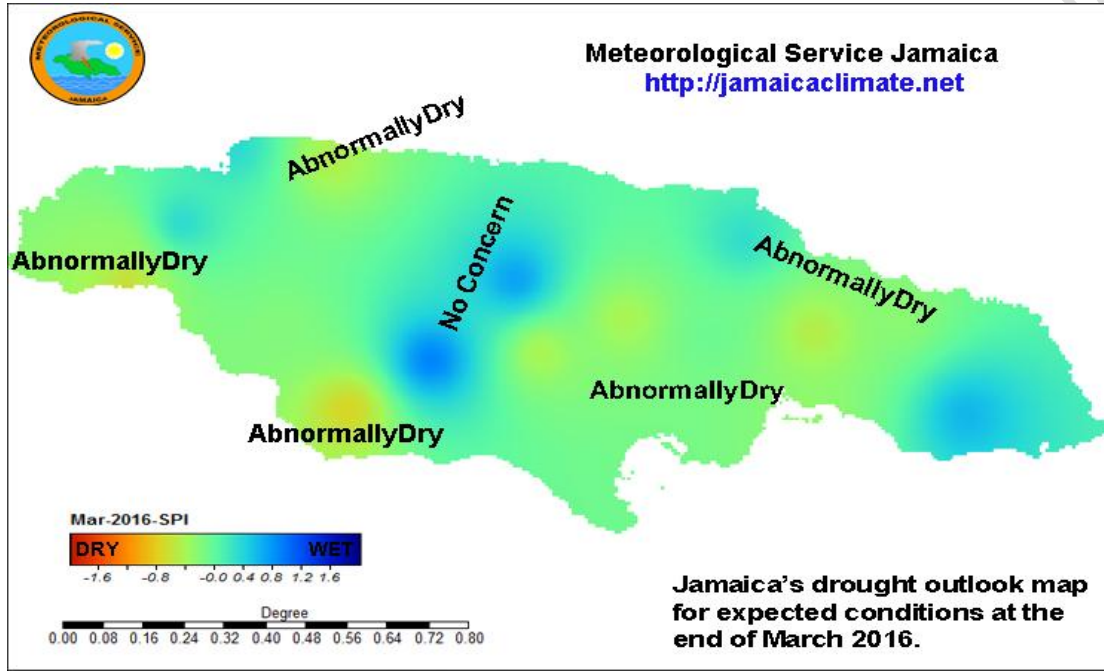
Stations	Below (B) %	Normal (N) %	Above (A)%
Manley (Kingston)	40	25	35
Sangster (St. James)	25	35	40
Sav. (Westmoreland)	45	35	20
Beckford (Clarendon)	25	35	40
Serge Island (St. Thomas)	40	35	25
Cave Valley (St. Ann)	40	25	30
Tulloch Estate (St. Catherine)	40	25	30
Y.S. Estate (St. Elizabeth)	35	20	45
Hampstead (St. Mary)	40	25	35
Orange Valley (Trelawny)	25	35	40
Langley (Kingston)	45	30	25
Mount Peto (Hanover)	35	40	25
Shirley Castle (Portland)	45	30	25
Suttons (Manchester)	30	15	55
Potsdam (St. Elizabeth)	40	25	30
Frome (Westmoreland)	40	35	25
Worthy Park (St. Catherine)	40	25	35
<b>Jamaica</b>	<b>37</b>	<b>30</b>	<b>33</b>



**Key**

- A: Above normal rainfall means greater than 66 percentile of the rank data
- N: Near normal rainfall means between 33 and 66 percentile of the rank data
- B: Below normal rainfall means below 33 percentile of the rank data

**Drought Forecast – March 2016**



**Fig.2 Expected drought conditions by end of March 2016**

**Temperature Forecast – January to March 2016**

Location	Below (B) %	Normal (N) %	Above (A) %
<b>Jamaica Temperature Outlook</b>	10	15	75



## **Summary and Expected Agricultural Impacts**

As Jamaica enters the dry season, precipitation forecast through March shows below normal to near normal levels for most stations, with sections of southern and northwestern parishes to be impacted the most.

El Nino which is the driving force for the drought which Jamaica has been experiencing this year, is still expected to continue throughout the dry season (Dec 2015 - Mar 2016). However, for the early rainfall season (April/May) conditions should improve over most parishes once the El Nino weakens, as is being predicted by the models.

With the island receiving below normal rainfall for the greater portion of the year which resulted in extreme drought conditions over some areas and a deficit in rainfall which would be carried into 2016, the implementation of water management plans for the dry season should have started especially for those areas most affected by the drought. This is to ensure that whatever situation unfolds in the next three (3) months it can be efficiently and effectively managed.